Title: VGDD : a virtual grid based data dissemination scheme for wireless sensor networks with mobile sink

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Abstract: Wireless sensor network (WSN) is considered as the enabling technology to bridge the gap between the physical and digital world. Some of the applications environments of WSN require a mobile sink to operate in the sensor field where delayed and/or partial data delivery might lead to inappropriate conclusions and thus require high quality of service in terms of latency and packets delivery ratio. Majority of existing mobile sink based data dissemination schemes aim to prolong network lifetime whereas few schemes improve the data delivery performance by employing multiple mobile sinks which add to the hardware and operating cost. In this paper we propose a virtual grid based data dissemination (VGDD) scheme that aims to optimize the tradeoff between network lifetime and data delivery performance while adhering to the low cost theme of WSN. Using the virtual structure, the proposed VGDD scheme follows a set of rules to disseminate sink's mobility updates in an energy efficient manner thereby maintaining nearly optimal routes. Furthermore, to cope with speed's variation of mobile sink, VGDD makes use of appropriate forwarder nodes for guaranteed data delivery. Simulation results reveal improved data delivery performance in terms of latency and data delivery ratio compared to existing work.